considered. A large addition of ore was charged into the furnace and molten iron poured over it before the ore had time to be strongly preheated. The ore charged, however, amounted to only 16*1 per cent., against 21*8 per cent, in the foregoing example. The amount of pig iron employed amounted to 20 tons, which is also smaller than in Charge No. 8,996. On this ground, one cannot directly compare the figures for the average production per minute, as well as the amounts of oxygen made useful on the average in the unit of time, since large charges exhibit better results in this respect. In opposition to this, the duration of the "heat" with smaller charges must be shorter than with large ones, even if the saving of time be not in direct ratio to the diminution of the weight of charge. 20,303 kilogrammes molten pig iron, and 4,181 kilogrammes ore containing 98 per cent. Fea03 were consumed. The chemical course is illustrated by Table W.

One sees at once from the analysis that the metal was only for a short time exposed to strongly ferruginous slag, and that in the period from 140 minutes from the beginning up to the end must be satisfied by a low ferruginous slag, in spite of ore being afterwards added.

The yield from this charge admits of being ascertained as follows:—

Iron from the ore charged 20-54 per cent. X0*98x0*7 14-09 per cent. Contained in the final slag (weight of same is derivable
as being 17*5 per cent.) 17'50 per cent.xO*073 . _J'28 »>
Net iron reduced from the ore.....12-SI per~cent.
Deducing agents eliminated,1 i.e., 4*54 per cent. C
-f-0-82 per cent. Si+2-30 per cent. Mn+0'12 per
cent. P..... 7*78 „
Net result. Charge growth Jr03 per cent.

The growth should have been as follows :— ———
4-54 Ox 1-47+0-S2 Six 1-0+0-12 Px2-0-2-30MnXO-32=7-00 per cent.

It is thus about 2 per cent, under that theoretically remaining. Wherein lies the cause ?

The ore consumption should have been as follows :—
4-54 Cx3'60+0;S2 Six4'32+0'12 Px4'30+2'30 MnxO'97 oO'Aft
="0:98=28'1 PCT Cetti

1 The growth of charge due to additions does not admit of exact figures, but error too small to affect result on which argument is based. Both C arid Mn added in Spiegeleisen and ferro-manganese are taken into account in arriving at these figures.—[Translator].